

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (original): A method for processing storage data that is to be communicated over a network, comprising:

providing storage data to be transmitted over a network;

serializing the storage data using storage encapsulation protocol headers to generate serialized storage data;

encapsulating the serialized storage data using a simple transport protocol to generate simple transport protocol data segments of the storage data; and

encapsulating each of the simple transport protocol data segments into Ethernet frames.

Claim 2 (original): A method for processing storage data that is to be communicated over a network as recited in claim 1, wherein the serializing of the storage data using storage encapsulation protocol headers to generate serialized storage data includes:

receiving the storage data, the storage data including one or both of commands and data, the commands including write commands, read commands, control commands, and status commands;

selecting portions of the received storage data to be serialized, the selected portions including commands and data; and

appending storage encapsulation protocol headers to each of the selected portions.

Claim 3 (original): A method for processing storage data that is to be communicated over a network as recited in claim 1, wherein the encapsulating of the serialized storage data using a simple transport protocol to generate simple transport protocol data segments of the storage data includes:

- selecting portions of the serialized storage data; and
- appending simple transport protocol headers to the selected portions to generate the simple transport protocol data segments of the storage data.

Claim 4 (original): A method for processing storage data that is to be communicated over a network as recited in claim 1, wherein the encapsulating of each of the simple transport protocol data segments into Ethernet packets includes:

- generating media access controller (MAC) header;
- appending the simple transport protocol segments to the MAC header; and
- appending a cyclic redundancy check (CRC) to the simple transport protocol segments.

Claim 5 (original): A method for processing storage data that is to be communicated over a network as recited in claim 3, wherein the simple transport protocol headers each include at least a handle field, a type field, a length field, a sequence number field, and an acknowledgment field.

Claim 6 (original): A method for processing storage data that is to be communicated over a network as recited in claim 5, wherein the handle field is used to exchange a handle

during the commencement of a session, the handle being exchanged between a initiator and a target of the network.

Claim 7 (original): A method for processing storage data that is to be communicated over a network as recited in claim 5, wherein the sequence number field is configured to count Ethernet frames.

Claim 8 (original): A method for processing storage data that is to be communicated over a network as recited in claim 5, wherein the acknowledgment field is used to exchange positive and negative acknowledgments of transactions.

Claim 9 (original): A method for processing storage data that is to be communicated over a network as recited in claim 1, wherein the storage encapsulation protocol contains a tag so that data segments and data segments of the storage data can be matched to a correct command.

Claim 10 (original): A method for processing storage data that is to be communicated over a network as recited in claim 1, wherein the STP transport protocol is configured to provide a stream of bytes arriving in the same order as they were sent.

Claim 11 (original): A method for processing storage data that is to be communicated over a network as recited in claim 1, further comprising:
appending an IP header to each of the simple transport protocol data segments.

Claim 12 (original): A method for processing storage data that is to be communicated over a network as recited in claim 1, wherein the storage data is selected from one of small computer system interface (SCSI) data, AT Attachment Packet Interface (ATAPI) data, and ultra direct memory access (UDMA) data.

Claim 13 (original): A method for communicating storage data over an Ethernet network using a non-TCP lightweight transport protocol, comprising:

providing data having a peripheral device protocol format, the data to be communicated over the Ethernet network;

selecting portions of the data;

attaching storage encapsulation protocol (SEP) headers to the selected portions of the data;

attaching simple transport protocol (STP) headers to one or more of the selected portions having the SEP headers to produce STP packets; and

encapsulating the STP packets into Ethernet frames for communication over the Ethernet network.

Claim 14 (original): A method for communicating storage data over an Ethernet network using a non-TCP lightweight transport protocol as recited in claim 13, wherein the peripheral device protocol format is one of a small computer system interface (SCSI) format, an AT Attachment Packet Interface (ATAPI) format, and an ultra direct memory access (UDMA) format.

Claim 15 (original): A method for communicating storage data over an Ethernet network using a non-TCP lightweight transport protocol as recited in claim 13, wherein the STP headers include at least a handle field, a type field, a length field, a sequence number field, and an acknowledgment field.

Claim 16 (original): A method for communicating storage data over an Ethernet network using a non-TCP lightweight transport protocol as recited in claim 15, wherein the handle field is used to exchange a handle during the commencement of a session, the handle being exchanged between a initiator and a target of the network.

Claim 17 (original): A method for communicating storage data over an Ethernet network using a non-TCP lightweight transport protocol as recited in claim 15, wherein the sequence number field is configured to count Ethernet frames.

Claim 18 (original): A method for communicating storage data over an Ethernet network using a non-TCP lightweight transport protocol as recited in claim 15, wherein the acknowledgment field is used to exchange positive and negative acknowledgments of transactions.

Claim 19 (original): A method for communicating data over an Ethernet network using a non-TCP lightweight transport protocol, comprising:

providing data having a virtual interface format, the data to be communicated over the Ethernet network;

selecting portions of the data;

attaching simple transport protocol (STP) headers to the selected portions of the data to produce STP packets; and

encapsulating the STP packets into Ethernet frames for communication over the Ethernet network.

Claim 20 (original): A method for communicating data over a network using a non-TCP lightweight transport protocol, comprising:

providing data, the data to be communicated over the network;

selecting portions of the data;

attaching simple transport protocol (STP) headers to the selected portions of the data to produce STP packets; and

encapsulating the STP packets into frames for communication over the network.

Claim 21 (original): A method for communicating data over a network using a non-TCP lightweight transport protocol as recited in claim 20, wherein the data is one of storage data, network data, file data, and virtual interface data.

Claim 22 (original): A method for communicating data over a network using a non-TCP lightweight transport protocol as recited in claim 20, wherein the network is configured to communicate storage data.